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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/016,665	12/11/2001	Raul A. Casas	1043.003	3974

22186 7590 03/28/2005

MENDELSON AND ASSOCIATES PC
1515 MARKET STREET
SUITE 715
PHILADELPHIA, PA 19102

EXAMINER

MEEK, JACOB M

ART UNIT PAPER NUMBER

2637

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/016,665	CASAS ET AL.	
	Examiner	Art Unit	
	Jacob Meek	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 3, 9, 18, 21, 22, 24 - 26, 36, 37 is/are rejected.
- 7) ☒ Claim(s) 4-8, 10-17, 19, 20, 23, 27-35 and 38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12/01</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because numerous handwritten captions in the drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 3, 9, 18, 21, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sommer et al (US Patent 6,240,133).

With regard to claim 1, Sommer discloses an apparatus for applying equalization to a complex valued signal being single-axis modulated data (see column 3, lines 30 – 39) comprising a linear predictive filter (see column 4, lines 39 – 51) characterized by a set of real-valued LPR parameters (see column 13, lines 28 –31), wherein LPR parameters are recursively updated based on one or more error terms (see figure 3, 61) to minimize output power of LPR filtered signal (see column 4, lines 44- -51 where adaptive gain control is interpreted as equivalent functionality); an equalizer configured as either a linear equalizer or a decision feedback equalizer (see column 3, lines 41 –52) wherein i) equalizer comprises a forward filter (see figure 2, 32 and figure 3 where this is interpreted as equivalent) characterized by a set of forward filter parameters, a feedback filter (see figure 2, 36 and figure 4 where this is interpreted as equivalent) characterized by a set of feedback filters parameters, and a decision circuit generating hard decisions for data of equalized signal (see figure 2, 40 where slicer is interpreted as equivalent); and ii) set of real valued feedback parameters are initialized by set of real valued LPR parameters, set of forward parameters are initialized with either values of a predetermined impulse or values based on a function of a channel response, and set of forward and feedback parameters are recursively updated based on one or more error terms (see column 1, line 63 – column 2, line 3 and column 2, lines 21 – 36 where this is interpreted as equivalent); and an error term calculator configured to generate one or more error terms (see figure 2, 38 and column 11, lines 38 – 49 where this is interpreted as equivalent). Sommer is silent with respect to an independent LPR filter. However, in view of applicant's background of invention (see page 7, lines 15 – 19 of instant application), this function is addressed by the feedforward portion of Sommer's invention (see

column 4, lines 40 – 52). Additionally, there is no specifically stated improvement for the added LPR element claimed by inventor, therefore the functionality embodied in Sommer's invention is deemed to be equivalent and simpler.

With regard to claim 2, Sommer teaches forward filter applies a forward function to generate the forward filtered signal (see figure 2, 32 and column 4, lines 40 - 52), the feedback filter applies a feedback function to either soft decisions defined by equalized signal or the hard decisions to generate a filtered decision (see figure 2, 36 and column 4, lines 53 – 65), and a combiner combines filtered decision with forward filtered signal to generate a new soft decision as equalized signal (see figure 2, 34 and column 4, lines 24 – 30).

With regard to claim 3, Sommer teaches a decision device comprising a slicer (see figure 2, 40), and a carrier loop configured to detect and adjust a phase error of received signal (see figure 1, 18, and column 8 – 14 where this is interpreted as equivalent functionality).

With regard to claim 9, Sommer teaches an error term generator receiving at least one of equalized signal and corresponding hard decision to generate one or more error terms (see figure 2, 38).

With regard to claim 18, Sommer teaches apparatus using a training sequence for the adaptation of equalizer (see column 2, line 60 – column 3, line 3).

With regard to claims 21 and 22, Sommer teaches apparatus processing a signal of VSB format and in accordance with ATSC standards (see column 7, lines 55 – 59).

With regard to claims 24 –26, 36, and 37 the steps claimed as method are nothing more than a restating of the function of the apparatus of claims 1-3, 21, and 22 respectively.

Allowable Subject Matter

3. Claims 4 – 8, 10 – 17, 19, 20, 23, 27 – 35, and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Other Cited Prior Art

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jaffe (US Patent 6,842,495) discloses a dual mode QAM/VSF receiver. Shiue (US Patent 6,816,548) discloses an HDTV channel equalizer with mux control of training sequencing. Endres (US Patent 6,668,014) and Martin (US Pub 2002/0054634) disclose an HDTV receiver utilizing CMA and DD equalization functions. Mahant-Shah (US Patent 6,370,191) and Kot (US Patent 5,930,296) disclose equalizers utilizing parallel equalization elements.

Conclusion

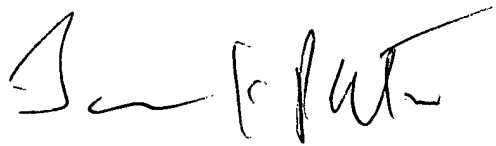
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Meek whose telephone number is (571)272-3013. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571)272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2637

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMM

A handwritten signature in cursive script, appearing to read 'JMM'.A handwritten signature in cursive script, appearing to read 'Jay K. Patel'.

JAY K. PATEL
SUPERVISORY PATENT EXAMINER